

FUNTOVA, N.F.

FUNTOVA, N.F.: "Approximate calculations of the critical frequencies of wave-guides of irregular form". Moscow, 1955. Moscow State Pedagogical Institute imeni V.I. Lenin. (Dissertations for the Degree of Candidate of Physicomathematical Sciences).

SO: Knizhnaya letopis' No 45, 5 November 1955. Moscow.

FUNTIKOVA, G.

In Latvia, Zashch. rast. ot vred. i bol. 10 no.10:

45-46 '65.

(MIRA 18:12)

1. Nachal'nik Latviyskoy karantinnoy inspektsii.

TROITSKIYA, V.K.; FUNTIKOVA, Ye.K.

Secretory activity of the pancreas in the course of developing atrophy caused by fistula of the major duct. *Fiziol. Zh.* 31 no.11:1327-1331 N '65. (1985, 12/11)

1. Laboratoriya fiziologii pishchevareniya Institut fiziologii imeni I.P.Pavlova AN SSSR, Leningrad.

FUR, I. T.

1746. Ovliyanii preparatov prostrela na apparat krovoobrashcheniya v usloviyakh eksperimenta i kliniki. Dnepropetrovsk. 1954, 15s 19sm. (Dnepropetr. Gos. Med. In-t) 100 ekz B-Ts - (54-551260)

SO: Knizhnaya Letopis', Vol. 1, 1955.

AUTHOR: Fur, Z. I. (Leningrad)

S/076/60/034/03/018/038  
B115/B016

TITLE: The Relaxation Mechanism of the Propagation of Combustion in  
Heterogeneous Exothermic Systems <sup>23</sup>

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 611 - 617  
(USSR)

TEXT: In the present paper the author develops a hypothesis, in which the propagation velocity of the combustion in heterogeneous exothermic systems is related to the rate of the heat exchange in the ignited range of the condensed phase. The exothermic system is regarded as a mixture of burning particles and particles of the oxidizing agent. The burning particles occupy about 8-15% of the total volume and are separated from one another by the particles of the oxidizing agent. For the development of the hypothesis the statistically distributed burning particles were assumed to be arranged regularly. Number and weight of the particles per volume unit, however, have not been altered. The distance between two layers of the burning particles is then equal to the mean distance of two particles at irregular distribution in the system. The follow-

ing equation results for  $\varepsilon$ :  $\varepsilon = \sqrt[3]{\frac{P}{\gamma N}} (1)$ .  $\varepsilon$  - thickness of an elementary layer

Card 1/3

The Relaxation Mechanism of the Propagation of  
Combustion in Heterogeneous Exothermic Systems

S/076/60/034/03/018/038  
B115/B016

(cm);  $\gamma$  - specific weight of the substance ( $\text{g/cm}^3$ );  $N$  - number of the burning particles in a section of the heterogeneous system weighing  $P$  grams. The heat quantity released by the reaction layer to the condensed phase, must be equal to the sum of the heat quantities which are taken up by the reaction layer from the condensed phase and from the envelope (through the condensed phase). The author derived from this condition equation (2) for the propagation velocity of combustion. The 5 coefficients of this equation are determined by calculation and not experimentally. Equation (2) may be simplified for some heterogeneous systems to give type (3) without considerable error. Equation (3) was tested on 2 heterogeneous systems which only differed from each other by the degree of reduction of the components. The propagation velocity calculated by equation (3) was only by 11% and 13%, respectively, smaller than the one determined experimentally. The developed hypothesis and equation (2) establish qualitative and also quantitative relations between the propagation velocity of combustion and the dispersion of the heterogeneous system. Ya. B. Zel'dovich and O. M. Todes are mentioned in the paper. There are 3 figures and 5 references, 4 of which are Soviet.

Card 2/3

The Relaxation Mechanism of the Propagation of  
Combustion in Heterogeneous Exothermic Systems

S/076/60/034/03/018/038  
B115/B016

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of  
Sciences of the USSR, Institute of Chemical Physics)

SUBMITTED: April 17, 1958

Card 3/3

S/076/60/034/06/23/040  
B015/B061

AUTHOR: Fur, Z. I. (Leningrad)  
TITLE: Relaxation Mechanism of the Propagation of Combustion in  
Heterogeneous Exothermic Systems. II  
PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 6,  
pp. 1299-1306

TEXT: A physical model for the relaxation mechanism of the propagation of combustion was proposed in a previous paper (Ref. 1), and an equation for the propagation rate of the combustion was derived. The action of the pressure and the initial temperature on the propagation rate, and some properties of the ignition process are explained here. As a hypothesis on the pressure dependence of the temperature  $T_{comb}$  of the combustion products is physically unfounded, this dependence is discussed purely formally on the assumption of an unknown process which mathematically allows a connection between temperature and pressure according to the Poisson equation. Equation (2) is derived which agrees well in many cases.

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Relaxation Mechanism of the Propagation of Combustion in Heterogeneous Exothermic Systems II B015/B061 S/076/60/034/06/23/040

with the experimental data (Tables 1, 2). Equation (2) is valid only at a certain pressure, at higher pressures the propagation rate of combustion has a different physical character and can e.g. be represented according to Ya. B. Zel'dovich's chemical kinetics. An approximate equation (5) was derived for the temperature coefficient  $\theta$ , by which the experimental observation of a rise in  $\theta$  with the initial temperature was confirmed. The relaxation mechanism proposed thus explains the effect of the initial temperature on the propagation rate of combustion. In the explanations of the ignition, the presence of a "critical stage" in the ignition was established. It is indicated that the present explanations represent a hypothesis that has to be worked out furthermore. The kinetics of the chemical reactions and the rate of heat transfer in the condensed phase according to O. M. Todes can be used to this end. In such a general hypothesis, Ya. B. Zel'dovich's hypothesis, and the present one would represent individual cases. Finally, Academician N. K. Semenov, Ya. B. Zel'dovich, O. M. Todes, A. F. Belyayev, O. I. Leypunskiy, P. F. Pokhil, A. S. Kompaneyets, K. K. Andreyev, and V. G. Pavlyshin are thanked. There are 3 figures, 3 tables, and 6 Soviet references.

Card 2/3

Relaxation Mechanism of the Propagation of Combustion in Heterogeneous Exothermic Systems. II S/076/60/034/06/23/040  
B015/B061

SUBMITTED: August 15, 1958

Card 3/3

FUR, Z.I.

Mechanism underlying the propagation of burning in smokeless  
gunpowder. Inzh.-fiz. zhur. no.12:118-124 D '63. (MIRA 17:2)

L 38970-65 EPA/EPA(a)-2/EWT(m)/EPF(c)/EP/EWA(c) Pr-4/PS-4/Pt-10 WH/JW

ACCESSION NR: AP5010069

UR/0170/65/008/004/0451/0455

AUTHOR: Fur, Z. I.

TITLE: Substantiation of the pressure dependence of combustion propagation velocity in the relaxation theory of combustion propagation

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 451-455

TOPIC TAGS: combustion velocity, combustion propagation, condensed system, relaxation theory, pressure dependence

ABSTRACT: In the previously postulated relaxation theory of combustion propagation in heterogeneous exothermic systems (Z. I. Fur, Zhurnal fizicheskoy khimii, v. 34, 1960, 611; 1299), the pressure dependence of the combustion propagation velocity was attributed to the dependence of the pressure on temperature on the condensed phase-gaseous phase interface. However, this suggestion was not substantiated. This problem was investigated again and new, more accurate equations were derived for the combustion propagation velocity in heterogeneous exothermic systems. Analysis of the new equations showed that the pressure dependence of the combustion propagation velocity is a part of the relaxation mechanism of the propagation, and there is thus no need for its substantiation. It was found that  $v$  may vary between

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L 38970-65

ACCESSION NR: AP5010069

0

0.25 and 0.38 instead of 0 and 0.38, as claimed in the author's previous work. It is also shown that in the case of a combustible mixture of low mechanical strength, the combustion propagation may be independent of pressure. Orig. art. has: [PS]  
1 figure and 8 formulas.

ASSOCIATION: none

SUBMITTED: 01Jun64

ENCL: 00

SUB CODE: FP

NO REF SOV: 007

OTHER: 000

ATD PRESS: 3228

Card 2/2

FURA, Marian; KOWALSKI, Mieczyslaw

Smith's type of fracture. Chir.narz.ruchu ortop.polska 25 no.3:  
223-227 '60.

1. Z Oddziału Ortopedyczno-Urazowego Miejskiego Szpitala Nr 8  
w Warszawie Ordynator: prof. dr Z.Ambros  
(RADIUS fract & disloc)

WITWICKI, T.; DYBOWSKI, W.; FURA, M.; SARNIECKA, S.; TYLMAN, D.; ZAWIDZKA, W.

Therapeutic results in pseudoarthrosis of the long bone. Chir. narz. ruchu ortop. polska 26 no.5:605-611 '61.

1. Z Kliniki Ortopodycznej AM w Warszawie Kierownik: prof. dr A.Gruca.

(PSEUDARTHROSIS surg)

BIALECKI, Stanislaw; FURA, Marian; SARNECKA, Danuta

Surgical treatment of post-inflammatory defects of the tibia. Chir.  
narz. ruchu ortop. polska 27 no.1:55-61 '62.

1. Z Kliniki Ortopedycznej AM w Warszawie Kierownik: prof. dr  
A Gruca.

(TIVIA dis)



FURA, Marian

Results of the treatment of Smith's fracture of the radius.  
Chir. narzad. ruchu ortop. pol. 28 no.6:575-580 '63.

1. Z Kliniki Ortopedycznej AM w Warszawie. Kierownik: dr.  
A.Gruca.

\*

FURA, Marian

Control of pain in the hip joint in chronic progressive and degenerative arthritis using novocaine block. Reumatologia (Warsz.) 3 no.2:147-156 '65.

1. Z Oddziału Ortopedycznego Instytutu Reumatologicznego w Warszawie (Kierownik Oddziału: doc. dr. med. W. Barcikowski; Dyrektor Instytutu: dr. med. W. Brühl).

BARCIKOWSKI, Wladyslaw; FURA, Marian

Hip surgery in rheumatic diseases. Reumatologia (Warsz.) 3 no.3:  
245-253 '65.

1. Z Oddzialu Chirurgii Ortopedycznej Instytutu Reumatologicznego  
w Warszawie (Kierownik: doc. dr. med. W. Barcikowski; Dyrektor  
Instytutu: dr. med. W. Brühl).

FURAC, Daro, dipl. inz.

Stage of the Senj Hydroelectric Power Plant construction at the  
beginning of August, 1964. Energija Hrv 13 no.5/6:181 '64

FURAC, Duro, dipl. Inz.

Resistance brazing of the welds on the branches of the dis-  
assembled pipeline of the Senj Hydroelectric Power Plant.  
Energija Hrv 13 no.7/8:252 '64.

ZYAZEV, V.L. (Sverdlovsk); FURASHEVA, M.N. (Sverdlovsk)

Gases in copper ingots and their determination. Izv. AN SSSR Met.  
i gor. delo no.2:132-136 Pr-Ap'64 (MD RA 17:8)

S/120/63/000/001/025/072  
E032/E314

AUTHORS: Averkov, S.I., Anikin, V.I., Ryadov, V.Ya. and  
Furashov, N.I.

TITLE: Vacuum spectrometer for the far infrared

PERIODICAL: Pribery i tekhnika eksperimenta, no. 1, 1963,  
108 - 112

TEXT: A simple vacuum spectrometer with metal mirrors is described. It is suitable for the range 55 - 1200  $\mu$  and can be used for determination of wavelengths, optical constants of various materials, the emissivity of sources, the sensitivity of detectors, etc. It is similar to that described by Yoshinaga et al (J. Opt. Soc. America, 1958, 48, 315). The optical system is shown in Fig. 2, in which  $\Lambda$  is the source, M is the modulator,  $\Lambda_1$  and  $\Lambda_2$  are slits,  $\Pi_p$  is the receiver. The mirrors  $\mathcal{Z}_1$  and  $\mathcal{Z}_9$  are spherical (D = 30 cm, F = 20 cm);  $\mathcal{Z}_4$  is a spherical mirror (D = 20 cm, F = 15 cm) and  $\mathcal{Z}_5$ ,  $\mathcal{Z}_6$  are also spherical (D = 31 cm, F = 60 cm.  $\mathcal{Z}_2$ ,  $\mathcal{Z}_3$ ,  $\mathcal{Z}_7$  and  $\mathcal{Z}_8$  are

Card 1/3

Vacuum spectrometer ....

S/120/63/000/001/025/072  
E032/E314

plane mirrors. A mercury quartz lamp, ПРК-4 (PRK-4) is used as the source and the receiver is an optical acoustic detector, ОАП-2 (OAP-2), with a working area of  $7 \times 7 \text{ mm}^2$  and a 1 mm thick quartz window. The modulator is a rotating disc with NaCl sectors. The modulation frequency is 9.6 c.p.s. The bandwidth of the tuned amplifier is  $\Delta F_{0.5} = 3.5 \text{ c.p.s.}$  The resolution at 95, 125 and 127  $\mu$  is quoted as: 1.1, 0.8 and  $0.76 \text{ cm}^{-1}$ , respectively. There are 3 figures and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy  
institut GGU (Scientific Research Radiophysics  
Institute of GGU)

SUBMITTED: April 11, 1962

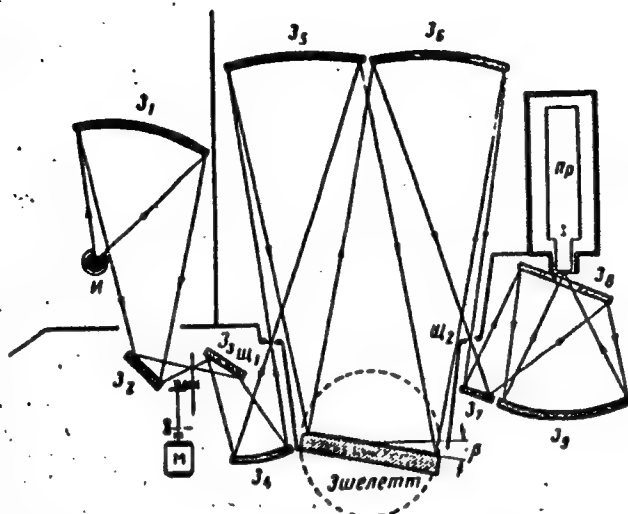
Card 2/3



Vacuum spectrometer ....

S/120/63/000/001/025/072  
E032/E314

Fig. 2:



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L 33581-66 EAT(1)

ACC NR: AR0016185

SOURCE CODE: UR/0058/65/000/011/D020/D020

AUTHOR: Furashov, N. I.

TITLE: Experimental investigation of long-wave absorption spectrum of atmospheric water vapor

SOURCE: Ref. zh. Fizika, Abs. 11D142

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 221-230

TOPIC TAGS: absorption spectrum, ir absorption, atmospheric water vapor, acoustic effect

ABSTRACT: Quantitative investigations were made of the rotational absorption spectrum of atmospheric water vapor were made with the aid of a vacuum spectrometer with diffraction gratings (echelettes) and an optical-acoustic receiver in the 60 - 220  $\mu$  range. The results are compared with measurements by other workers and with the theoretical data. [Translation of abstract]

SUB CODE: 20,04/

Card 1/1 20

ACCESSION NR: AP4040908

S/0109/64/009/006/0943/0949

AUTHOR: Ryadov, V. Ya.; Furashov, N. I.; Sharonov, G. A.

TITLE: Measurement of air transparency at the 0.87 mm wavelength

SOURCE: Radiotekhnika i elektronika, v. 9, no. 6, 1964, 943-949

TOPIC TAGS: air transparency, solar radiation, submillimeter radiation, water vapor absorption, radiation attenuation, radio meteorology

ABSTRACT: Theoretical investigations of the transparency of the earth's atmosphere in the submillimeter band and spectroscopic studies indicate that the attenuation of submillimeter radiation is, for all practical purposes, due to absorption by the water vapor in the air. Using a radioastronomical method and solar radiation data, the authors of this article measured the coefficient of absorption in the transparency region centered about an average wavelength of 0.87 mm. The method is based on the relative measurements of the air-attenuated solar radiation at various zenith angles. The measurements were taken

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ACCESSION NR: AP4040908

in the Pamir Mountains at 3,860 m above sea level using apparatus described in a previous article by C. I. Averkov and others (Astronomicheskii Zhurnal, 1964, 41, 3, 541). The mean specific vertical absorption at that elevation was 1.8 db per  $\text{g/m}^3$  of water vapor. When the ground-level humidity characteristic of the region and season was 0.5—3  $\text{g/m}^3$ , the total vertical absorption in the 0.87 mm transparent region, in the 0.9  $\text{cm}^{-1}$  signal band, was 0.9—5.4 db. The experimental value of the coefficient of absorption was 10.4 db/km, which is 1.9 times higher than the theoretical value. The 40% discrepancy between these experimental and theoretical values can be attributed to the lack of experimental data for the vertical distribution of humidity. The minimum coefficient of absorption was computed to be 8.5 db/cm. The authors express gratitude to S. A. Zhevakin for his valuable advice and discussions. Orig. art. has: 4 figures, and 4 formulas.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AP4040908

SUBMITTED: 21Mar63

SUB CODE: ES, AA

ATD PRESS: 3049

NO REF SOV: 008

ENCL: 00

OTHER: 006

Card 3/3

ACCESSION NR: AP4017622

S/0033/64/041/001/0112/0115

AUTHOR: Ryadov, B. Ye.; Furashov, N. I.; Sharonov, G. A.

TITLE: Measurements of the Moon's own thermal radiation in the infrared

SOURCE: Astronomicheskly zhurnal, v. 41, no. 1, 1964, 112-115

TOPIC TAGS: Moon, thermal radiation, lunar temperature, infrared radiation, radiophysics, astrophysics

ABSTRACT: For a study of the physical properties of the lunar surface, measurements of the effective temperature of its radiation in various sections of the spectrum of electromagnetic waves are of great interest. In the majority of known works dealing with observations of the Moon's infrared radiation, individual sections of the lunar surface have been considered, while in radioastronomical observations more frequent has been the measurement of the integral radiation from the satellite's entire surface. For a comparison of the results obtained in the radio and infrared bands it is also of interest to know the phase behavior of the effective temperature of lunar integral radiation in the infrared region. In this article, results are given of measurements of the phase behavior of the effective radiation temperature of the Moon, averaged over the full disk, in the 8-13.5 micron region. The observations were made with a device in which was used a  $\phi$  900 mm

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ACCESSION NR: AP4017622

parabolic reflector (focal length - 365 mm). An optical-acoustical radiation receiver with a receiving surface of  $\varnothing 6$  mm and a window of cesium iodide was employed as an indicator. Signals were received by the modulation method. The longwave boundary of received radiation ( $\lambda \approx 13.5$ ) was practically limited by absorption in atmospheric water vapors and carbon dioxide gas. The test method is explained in detail in the article. Data were obtained on the effective temperature of the Moon at full moon and during lunation at a variation of the phase angle by  $150^\circ$ . The effective temperature of the Moon, averaged over the disk, at full moon is  $380^\circ$  K and the temperature at lunar midnight, found by an extrapolation of experimental results, is  $120-130^\circ$  K. The phase variations of temperature are compared with theoretical data, indicating, in particular, that the value of the parameter  $(k/c)^{-1/2}$  lies within the limits of 250-400. "In conclusion the authors wish to express their gratitude to V. D. Krotikov for his valuable advice and discussion of the results, and also to A. P. Naumov and M. B. Flaksman for their help in the numerical computations." Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: Radiofizicheskiy Institut Gor'kovskogo gos. universiteta im. N. I. Lobachevskogo (Radiophysics Institute of Gorkiy State University)

SUBMITTED: 03Apr63

DATE ACQ: 18Mar64

ENCL: 00

Card 2/2

SUB CODE: AS

NO REF SOV: 005

OTHER: 005

L 8737-65 EWT(1)/EWG(v)/EEC-4/EEC(t) Pe-5/Pq-4/Pas-2 RAEM(1)/ASD(a)-5/  
ESD(ga)/SSD/AFWL/ASD(f)/ASD(b)/AFETR/APGC(b)/ESD(t) GW  
ACCESSION NR: AP4040646 S/0033/64/041/003/0542/0545

AUTHOR: Averkov, S. I.; Anikin, V. I.; Ryadov, V. Ya.; Furashov, N. I. 13

TITLE: An astronomical station for observations in the far infrared region of the spectrum

SOURCE: Astronomicheskij zhurnal, v. 41, no. 3, 1964, 542-545

TOPIC TAGS: astronomy, astronomical instrument, solar radiation, far infrared spectral region, infrared spectrum, spectroscopy

ABSTRACT: An astronomical station for observations in the far infrared region of the spectrum is described; this station was used on the Pamir expedition of NIRFI (Radio-physics Scientific Research Institute) in 1962. The general appearance of the station is shown in Fig. 1 of the Enclosure. Its principal components are a parallactic mounting, an optical system and a receiving-recording apparatus with a power unit. An antenna system is attached as shown in the figure; the optical system is within the housing. The parallactic mounting has a clock mechanism which automatically ensures the proper diurnal motion of the optical part of the station. The station is well suited for field use. Fig. 2 of the Enclosure shows the optical system. The antenna system is formed of 2 confocal mirrors (A and B) 900 and 260 mm in diameter; these mirrors considerably increase the intensity of the received radiation, which enters the monochromator (M) as pencils of

Card 1/6



L 8737-65

ACCESSION NR: AP4040846

parallel rays. The monochromator is used to separate a narrow band of signal frequencies from the continuous spectrum of the source. An echelette grating is used as the dispersing element. Scanning of the spectrum is accomplished by turning the echelette, using a synchronous motor. The weak signal detected by the optical system is transmitted to the receiving-recording apparatus. The radiation indicator used in this component is an optoacoustical detector with a quartz window and a threshold sensitivity of  $\sim 5 \times 10^{-10} \text{ W}$ . Full details concerning the optical system are supplied in the text. Preliminary tests were made under laboratory conditions in the spectral range  $140-1400 \mu$ . Field tests in the Pamirs at an elevation of 3,860 m were in the spectral region  $300-1400 \mu$ , and the spectrograms obtained at this time were used in determining the windows of relative atmospheric transparency in this range. Fig. 3 of the Enclosure shows the record of signals from the sun in the region  $300-1400 \mu$ . The minima of the curve correspond to the absorption lines of water vapor in the atmosphere (the upper part of the diagram shows their theoretical spectral distribution). "In conclusion, the authors thank M. T. Grekhova for her interest and support during development of the station. The authors also thank I. V. Mosalov and O. A. Slavolyubov for their participation in the design of the station, B. A. Sverdlov for

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L 8737-65  
ACCESSION NR: AP4040846

assistance in adjustment of the apparatus and G. A. Sharonov, who participated in the preparations for and implementation of the observations." Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 28Jul63

ENCL: 03

SUB CODE: AA

NO REF SCV: 004

OTHER: 001

Card 3/6

L 8737-65  
ACCESSION NR: AP4040846

ENCLOSURE: 01

Fig. 1.

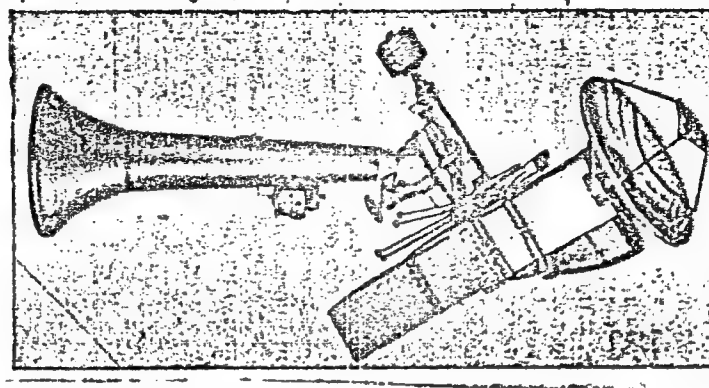


Fig. 1. General view of the astronomical station.

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L 8737-65  
ACCESSION NR: AP4040846

ENCLOSURE: 02

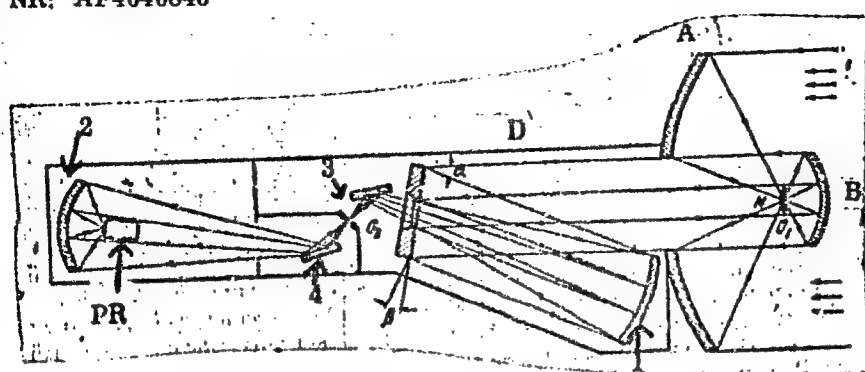


Fig. 2.

Fig. 2. Schematic representation of the optical system of the astronomical station:  
A & B - confocal parabolic mirrors; M - monochromator; 1 & 2 - parabolic mirrors; 3 & 4 - mirrors; PR - prism.

Card 5/6

L 8737-65  
ACCESSION NR: AP4040846

ENCLOSURE: 03

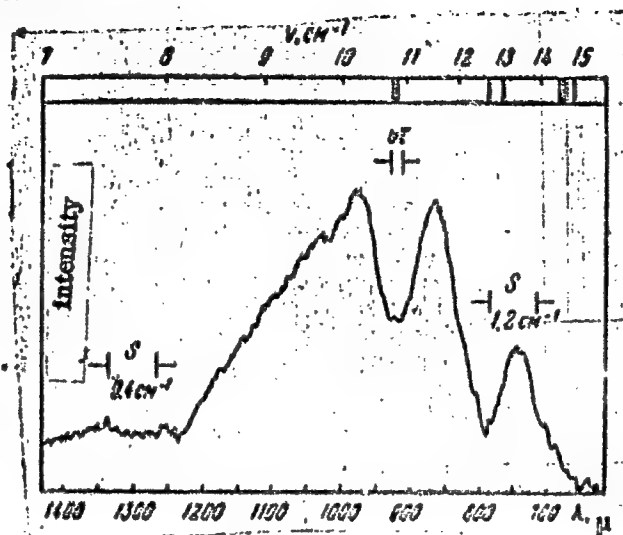


Fig. 3.  
Spectrum of signals from the sun in the range 600-1400  $\mu$ .

Card 6/8,

L 34526-55 RO

ACC NR: AP6025866

SOURCE CODE: CZ/0043/65/000/008/0611/0619

AUTHOR: Furdik, Mikulas (Professor; Engineer; Bratislava); Sidoova, Eva--Sidoova, Ye. (Engineer, Candidate of sciences; Bratislava); Priehradny, Samo--Priyegradny, S. (Doctor; Bratislava) 27  
8

ORG: [Gurdik; Sidoova] Chemical Laboratory, Faculty of Natural Sciences, Comenius University, Bratislava (Laboratorium chemie Prirodovodeckej fakulty Univerzity Komenského); [Priehradny] Research Institute of Agrochemical Technology, Bratislava (Vyskumny ustav agrochemickej technologie)

TITLE: Investigation of the herbicidal properties of new derivatives of N-amino-1,4-endoxocyclohex-5-3n-2,3-dicarboximide

SOURCE: Chemické zvesti, no. 8, 1965, 611-619

TOPIC TAGS: chemical compound, organic chemistry

ABSTRACT: Herbicidal properties of derivatives of N-amino-1,4-endoxocyclohex-5-en-2,3-dicarboximide prepared by various substitutions on the N in the amino-group were investigated. The derivatives showed rather low herbicidal properties; the only substance that showed reasonable activity was the N-(dinitrophenylamino)-derivative. The authors thank J. Grnako, Chemistry Laboratory, PFUK, Bratislava, for performing the analysis; and Engineer J. Synak, Head Collective, Biological Section, Research Institute of Agrochemical Technology, Bratislava, for testing the herbicidal properties of the prepared substance. Orig. art. has: 1 figure and 3 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 03Mar65 / ORIG REF: 002 / OTH REF: 001

Card 1/1

09/6 0997

L 25918-66 EWT(1)/FCC GW

ACC NR: AP6011554

SOURCE CODE: UR/0051/66/020/003/0427/0435

AUTHOR: Furashov, N. I.

ORG: none

TITLE: Investigation of the absorption of long-wave infrared radiation by atmospheric water vapor

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 427-435

TOPIC TAGS: absorption spectrum, ir absorption, atmospheric water vapor, spectrometry

ABSTRACT: This is a continuation of earlier work (Radiotekhnika i elektronika v. 9, 989, 1964; PTE, No. 1, 108, 1963) on the rotational absorption spectrum of atmospheric water vapor, but the range of measurements has been considerably extended (55--1000  $\mu$  as against 60--200  $\mu$  in the earlier investigation). The absorption was measured with a vacuum spectrometer described earlier, using four interchangeable echelettes and an optical-acoustic receiver (OAP-2). A mercury lamp (PRK-4) with stabilized discharge current was used as a source. The test procedure is described in detail. Considerable attention was paid to increase the signal/noise ratio and to reduce measurement errors connected with slow variations of the recording-system sensitivity. The procedure for determining the experimental absorption from the intensity ratios is described in some detail. Reliable results could be obtained only in the wavelength ranges 55--690 and 770--810  $\mu$ , and in the remaining parts of the tested range the signal was not sufficiently attenuated by absorption to produce dependable data. The results are compared with the theoretical values obtained by S. A. Zhevakin and A. P.

Card 1/2

UDC: 535.34-14: 546.212

L 25948-66

ACC NR: AP6011554

2

Naumov (Radiotekhnika i elektronika v. 9, 1327, 1964 and earlier). While agreement with experiment is satisfactory in only a few cases, it is assumed that the vacuum-spectrometer method will make it possible to obtain reliable results once the sources of other systematic errors are determined. The author thanks S. A. Zhevakin under whose guidance the work was performed and Yu. G. Kurin for help with the data reduction. Orig. art. has: 4 figures, 3 formulas, and 2 tables. [02].

SUB CODE: 20/ SUBM DATE: 09Dec64/ ORIG REF: 012/ OTH REF: 008/ ATD PRESS: 4257

Card 2/2 *pl*



ACC NR: AP6033279

SOURCE CODE: UR/0141/66/009/005/0859/0866

AUTHOR: Ryadov, V. Ya.; Furashov, N. I.

ORG: Scientific Research Radiophysics Institute at Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: Atmospheric absorption of e-m waves in the 0.76—1.15 mm band

SOURCE: IVUZ. Radiofizika, v. 9, no. 5, 1966, 859-866

TOPIC TAGS: absorption spectrum, radio wave absorption, millimeter wave propagation, *ATMOSPHERIC PROPERTY*

ABSTRACT: Ground-level atmospheric absorption of wavelengths in the 0.67—1.15 mm range is described. The tests supplement those of the author and others on absorption in the submillimeter range, and are claimed to be the most precise published to date. In an otherwise clear atmosphere water vapor is the main absorptive agent in this frequency band, hence the data are presented as functions of absolute humidity over the transmission path. The transmitter (Fig. 1) used a backward-wave amplifier feeding a 900 mm diameter parabolic reflector via an elliptical subreflector 100 mm in diameter. In order to correct for wide changes in transmitter power when tuning over the test band, the transmitted signal was sampled ( $Z_3$ , Fig. 1) and compared to a standard IR source to generate corrective feedback. Other steps to standardize power included frequent polishing of the reflector surfaces and recoating. Transmitter power was on the order of a few milliwatts, and was mechanically chopped at

Card 1/3

UDC: 551.510:621.317.029.66

ACC NR: AP6033279

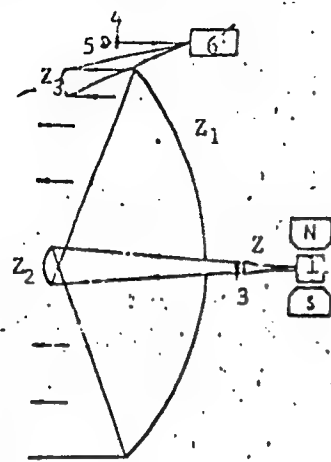


Fig. 1. Transmitter optics

Z<sub>1</sub> - Main reflector; Z<sub>2</sub> - subreflector; Z<sub>3</sub> - monitor reflector; 1 - Bw tube; 2 - tapered guide; 3,4 - mechanical modulator; 5 - IR standard source; 6 - monitor receiver.

at 10 cps. Wavelength was measured by a Boltzman interferometer. Reception was by means of a radiometer, also using a 900 mm parabola and a type OAP-2 penumatic indicator. To reveal possible systematic errors, two techniques were used:

1) transmission over fixed distances at varying humidity, and 2) transmission over various distances at fixed humidity. Paths were over water, and ranged from 350 m to 1.89 km. Transmitter and receiver were both 12.5 m above ground which, with a 5' beamwidth, minimized reflections from the water surface. Results

Card 2/3

ACC NR: AP6033279

from both methods agreed well enough to conclude that no systematic error was detectable. Fig. 2 shows the spectral results, corrected to standard atmospheric conditions. It is seen that absorption, particularly in the 0.87 mm window, is somewhat greater than predicted by theory. Orig. art. has: 4 figures. [WA-12]

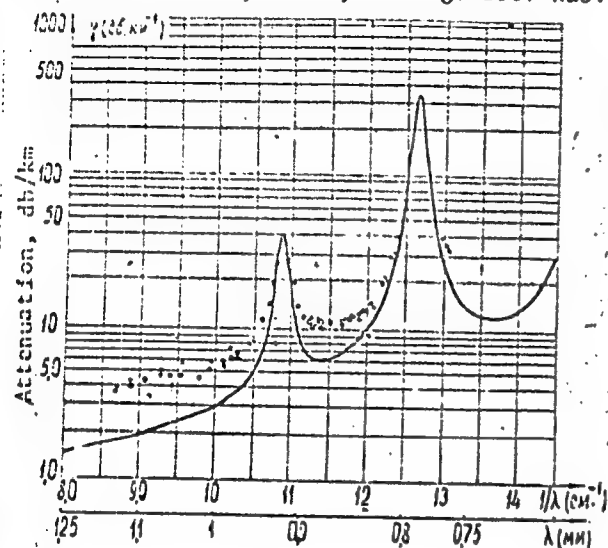


Fig. 2. Absorption spectrum adjusted to standard atmosphere ( $\rho_0 = 7.5 \text{ g/m}^3$ ,  $p = 760 \text{ mm Hg}$ ,  $T = 293\text{K}$ )

x, o - Experimental; solid line - theoretical

SUB CODE: 09/ SUBM DATE: 27Jan66/ ORIG REF: 008/ OTH REF: 001/  
Card 3/3

ACC NR: AP7001209

SOURCE CODE: UR/0141/66/009/006/1073/1077

AUTHOR: Ryadov, V. Ya.; Furashov, N. I.

ORG: Scientific Research Institute of Radiophysics at Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: The width of the absorption line of water vapor at  $\lambda = 0.92$  mm

SOURCE: IVUZ. Radiofizika, v. 9, no. 6, 1966, 1073-1077

TOPIC TAGS: spectral line, spectral absorptivity, line width, absorption coefficient, absorption line, *WATER VAPOR*

ABSTRACT: The absorption coefficient of the water vapor of the atmosphere was measured in the range of the resonance of the spectral line  $1/\lambda_{1j} = 10.86 \text{ cm}^{-1}$ , which corresponds to the rotational transition  $4_0 - 5_{-4}$ . Recent measurements have shown that the absorption coefficients obtained experimentally differ from those obtained by calculations (given by Benedict and Kaplan). Therefore, the absorption lines corresponding to the  $4_0 - 5_{-4}$  ( $\lambda_{1j} = 0.92$  mm) transition were measured. The measurements were conducted over the water's surface by a method in which the humidity was varied over the 1350 m between the transmitter and receiver. A source of monochromatic radiation and a radiometer with a thermal indicator were used in the measurements. The absorption was measured at an average temperature of 20C and an average pressure of 760 mm Hg. During the measurements the temperature was constant within  $\pm 8^\circ\text{C}$  and the pressure within  $\pm 10$  mm Hg. Under the assumption that the dipole moment of the

Card 1/2

UDC: 621.371.166.2

ACC NR: AP7001209

transition is  $1.84 \times 10^{-18}$  CGSE, i.e., is equal to the value of the dipole moment of the  $H_2O$  molecule, averaged over all states, the obtained halfwidth of the line was  $\Delta\nu/c = 0.101 \pm 0.009 \text{ cm}^{-1}$ . This value is 19% higher than that obtained by Benedict and Kaplan. Orig. art. has: 3 formulas and 1 figure. [WA-72]

SUB CODE: 20/ SUBM DATE: 07Feb66/ ORIG REF: 007/ OTH REF: 007/

Card 2/2

L 20783-66 EWT(m)/EWP(v)/EWP(j)/I/EWP(t)/EWP(k)/EWP(h)/EWP(l)/EIC(m)-6 IJP(c)

ACC NR: AP6004646

RM/WW/JD/WB

SOURCE CODE: UR/0383/65/000/005/0045/0047

AUTHOR: Fomichev, I. A.; Petrinin, G. P.; Furasov, M. D.; D'yachenko, R. I.

58  
56

ORG: none

TITLE: Machine for depositing polymeric protective coatings onto steel tubes performing in aggressive media

fb  
15 44 55  
B

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 5, 1965, 45-47

TOPIC TAGS: protective coating, polymer, metal tube, corrosion/MPTSh 102/42 tube coating machine

ABSTRACT: The replacement of expensive and scarce tubes of stainless steels and non-ferrous and precious metals with tubes of ferrous metals having protective coatings of polymeric materials resistant to aggressive media is currently being extensively investigated. In this connection, the authors describe the newly designed MPTSh 102/42 machine for coating with polymeric materials the internal surface of seamless steel by the extrusion method (Fig. 1). The operating principle of the machine is such that the screw conveyor extrudes the paste of polymeric material into the barrel of a rotating tube, or more exactly into the annular cavity between the mandrel and the tube, thus coating the internal surface of the tube with a uniform layer of the paste. Automatic pickups trigger and halt the feeding of the paste and the removal of the coated tube and mounting of a new tube onto the conveyor table. Laboratory

14

Card 1/4

UDC: 621.774:621.793:678.5

2

L 20783-66

ACC NR: AP6004646

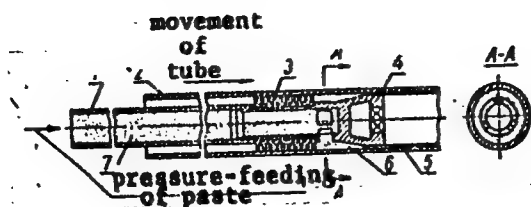


Fig. 1. Diagram of the deposition of protective coating  
1 - hollow rod; 2 - tube being coated; 3 - compacting disks; 4 - mandrel;  
5 - coating; 6 - cavity for paste; 7 - paste in hollow rod

Card 2/4

L 20783-66

ACC NR: AP6004646

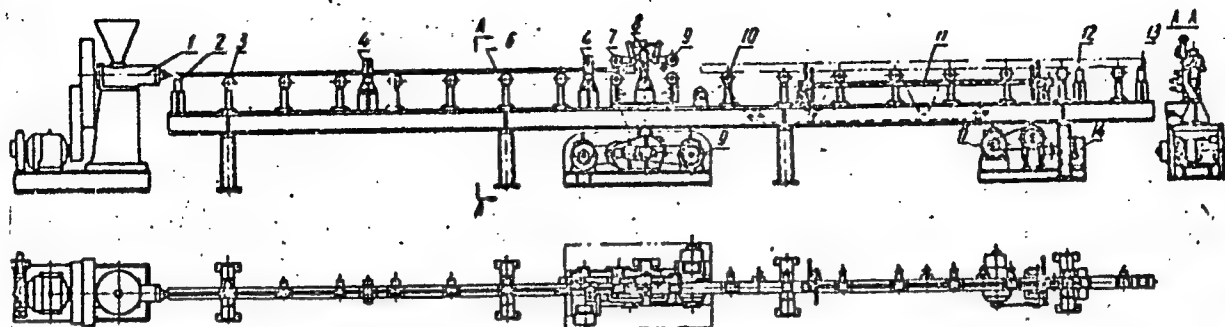


Fig. 2. General view of the MPTSh/42 machine:

1 - screw extruder; 2 - contactless pickup; 3 - guide table; 4 - collar plate;  
5 - frame; 6 - hollow rod; 7 - mandrel; 8 - collar plate; 9 - tube-moving  
mechanism; 10 - tube-feed table; 11 - mechanism for feeding and removing of  
tubes; 12 - contactless pickup - 2; 13 - contactless pickup - 3; 14 - automatic  
controller

Card 3/4



L 20783-66

ACC NR: AP6004646

2

and operating trials of this machine produced positive results with respect to tubes of various diameters and of a length of up to 7 m. The machine can deposit a 1-mm thick coating on 100 tubes of 42-mm diameter per hour or on 48 tubes of 102-mm diameter per hour. The thickness of the coating can be adjusted from 0.5 to 2 mm. This method of tube-coating can be employed as a protection against corrosion and as a means of prolonging the service life of tubes, provided that the coating material is applied in the form of a paste. Currently the Dnepropetrovsk Institute of Chemical Technology, in collaboration with the Dneprodzerzhinsk Nitrogenous Fertilizers Plant, is performing operating trials of the thus coated pipe in pipelines for the transport of aggressive fluids; this should prove to be a conclusive test. Moreover, it has been established that eventually the machine can be adjusted to coat pipe segments reaching 12 m in length. Orig. art. has: 2 figures.

SUB CODE: 0, 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 4/4

ONUSHKIN, Viktor Grigor'yevich; MALININ, Sergey Aleksandrovich; PURAYEV,  
Y.K., kand.istor.nauk, nauchnyy red.; VASIL'YEV, A.V., red.  
izd-va; GURDZHIYEVA, A.M., tekhn.red.

[Imperialist nature of "the atomic program" of the U.S.A.]  
Imperialisticheskaya sushchnost' "atomnoi programmy" SShA.  
Leningrad, Ob-vo po rasprostraneniю polit. i nauchn.znaniy  
RSFSR, Leningr.otd-nis, 1959. 45 p. (MIRA 13:5)  
(United States--atomic power)

ALESHKIN, P.K., inzh.; FURAYEV, M.S., inzh.; TABUNINA, M.A., red. izd-  
va; SHEVCHENKO, T.N., tekhn. red.

[Handbook on accident prevention for those working on the super-  
structure of buildings] Pamiatka po tekhnike bezopasnosti dlia  
rabochikh po nadstroike zdani. Moskva, Gosstroizdat, 1962. 21 p.  
(MIRA 15:6)

(Building--Safety measures)

KIRSANOVA, M.K., kand. tekhn. nauk; FURAYEVA, G.M., inzh.

Making products in construction yards. *Biul. stroi. tekhn.* 16  
no. 2:31-33 F '59. (MIRA 12:2)

1. Nauchno-issledovatel'skiy institut zhilishcha Akademii  
stroitel'stva i arkhitektury SSSR.  
(Concrete construction--Formwork)

FURAYEVA, L. P.

ACCESSION NR: AT4042653

5/0000/63/000/000/0056/0060

AUTHOR: Baranov, V. I.; Gyurdzhian, A. A.; Lomova, M. A.; Radkevich, L. A.;  
Tutochkina, L. T.; Fedorova, T. A.; Furayeva, L. P.; Khn'chev, S. S.; Artem'yeva,  
N. S.

TITLE: The effect of gravity on the development of organisms

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963.  
Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy  
konferentsii. Moscow, 1963, 56-60

TOPIC TAGS: gravity, centrifuge, organism development, physiological function,  
rat, chronic centrifugation, blood composition, urine composition, Coriolis  
acceleration

ABSTRACT: In this investigation, Baranov and his co-workers designed a centrifuge  
for small animals with an arm radius of 135 cm which could be regulated to produce  
artificial gravitational fields of from 4 to 5 g. The centrifuge was arranged  
in such a way that the arms and cages at the end of the arms would simultaneously  
rotate around their axes producing Coriolis accelerations. A single control panel

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ACCESSION NR: AT4042653

regulated the photography and illumination of cage interiors, automatic feeding of the animals, and the revolving rate of the centrifuge. It was possible to record five separate physiological functions from some specially prepared animals. Experiments were conducted on white rats, commencing on the first day after birth and continuing for 25 days. Litters consisting of 200 animals were divided into experimental and control groups. All animals were born at approximately the same time. Experimental animals were subjected to accelerations ranging from 1.5 to 3 g for periods of from 4 to 6 hours, 6 days per week. The weighing of all animals took place every three days as did biochemical assays of the blood and urine, tests of vestibular activity, and the determination of the time of sexual maturity in female animals. At the termination of the experiment, a comparative test of the response of both experimental and control animals to brief accelerations of 5, 10 and 20 g was conducted. After 20--25 days, the body weight of chronically centrifuged animals was 60--80% that of the controls. The composition of erythrocytes (89.6%), leukocytes (93.4%), and hemoglobin (99.1%) in the blood of experimental animals with respect to control animals reflected a slightly anemic condition. While blood albumin in experimental animals was somewhat lower than in the controls, serum mucoid composition was higher, indicating a change of dystrophic character. Urine assays of experimental animals showed that the levels of Diche-positive substance (48%), nitrogen (62%), creatine (31%),

Card 2/3

ACCESSION NR: AT4042653

and creatinine (60%) were lower than in the control animals. Finally, the estral cycle of experimental females was significantly altered, though one female gave normal birth to young. In the second investigation, control animals exposed to brief accelerations of 5 g showed noticeable increases in the level of non-esterified fatty acids, decreases in serum mucoid composition, and increases in the albumin-globulin ration. However, at 20 g there was an increase in serum mucoid composition and a decrease in the albumin-globulin ration. Biochemical variations in experimental animals subjected to the same accelerations were insignificant. The authors conclude that gravity plays a complex role in the physiological processes of the developing organism but that the true mechanism of this role is far from being understood.

• ASSOCIATION: none

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 3/3

DOKTOROVICH, Abram Yakovlevich, kand. ekon. nauk; FURAYEVA, V.V.,  
ass., red.

[Economics and organization of the manufacture of electronic  
vacuum devices] Ekonomika i organizatsiia elektrovakuumnogo  
proizvodstva. Sost. A.IA.Doktorovich. Red. V.V.Furaeva. Mo-  
skva. No.2. 1962. 69 p. (MIRA 16:11)

1. Moscow. Energeticheskii institut. Kafedra ekonomiki pro-  
myshlennosti i organizatsii predpriyatiya.  
(Electronic industries--Management)



FURCH, J.

18

Testing of Steel Ropes by an Electromagnetic Method. J. Furch. (Bansky Obzor, 1950, vol. 4, June, pp. 94-95). [In Czech]. An improved method of electromagnetic examination for steel ropes is described. The measuring coil consists of two series-connected half coils which are screwed together during testing. The rope is magnetized by an electromagnet with split pole pieces which are screwed together after insertion of the rope. The metering coil is fixed to the magnet by a metal plate to prevent any movement of the measuring coil relative to the magnet during tests. The voltages induced in the measuring coil are amplified electronically and fed to the grid of a thyatron which functions as a sensitive relay and can be set to operate only for voltages corresponding to a certain minimum damage in the rope. By this method a testing speed of 1 to 2 m./sec. is obtained.—S. G.

AD-554 METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED	INDEXED	SERIALIZED	FILED	DATE	BY	CLASS	EXT	NOTES

FURCH, J.

Accidents in coal mines in 1953. p. 367.  
TECHNICKE NOVINY. Vol. 4, no. 10, Oct. 1954.

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 5, No. 6, June 1956 Uncl.

FURCH, J.

Accidents in blasting operations. p. 347.  
UHLI, Prague, Vol. 4, no. 11, Nov. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,  
June 1956, Uncl.

FURCH, J.

Accidents in coal mines in 1953. p. 367.  
UHLI, Prague, Vol. 4, no. 12, Dec. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,  
June 1956, Uncl.

FURCH, J.

Accidents in mines in 1953. p. 55.  
RUDY, Praha, Vol. 3, no. 2, Feb. 1955.

30: Monthly List of East European Accessions, (MEAL), IC, Vol. 4, no. 10, Oct. 1955,  
Uncl.

PURCH, J.

Rate of accidents in brown coal mines in 1953. p. 131.  
UMIT, Praha, Vol. 5, no. 4, Apr. 1955.

SO: Monthly List of East European Accessions, (CSL), LC, Vol. 4, no. 10, Oct. 1955,  
Uncl.

~~FURCHIKOV, Nikolay Yevgrafovich; ZAGREBIN, Vasil'yevich;~~  
~~DIMITROVSKIY, A.M., red.; KAN, P.M., red.izd-va; BOBROVA, V.A.,~~  
tekhn.red.

[Industrial section on the introduction of new techniques in  
ship repair plants] Proizvodstvennyi uchastok po vnedreniiu  
novoï tekhniki na sudoremontnom zavode. Moskva, Izd-vo "Rechnoi  
transport," 1959. 18 p. (MIRA 13:5)  
(Ships--Maintenance and repair)

FURCHTGOTT, J.

Active turbulent layer downwind of mountain ridges. In English.

p 173 (Studia Geophysica Et Geodaetica) Vol 1 no 1 1957. Praha, Czechoslovakia.

SO: Monthly Index of East European Accessions (EEAI) LC, Vol 7, no 1 Jan 1958



FRANCHE, Maria, prof., dr.; BRAUNER, E., dr.; CUCIUREANU, Gh., dr.; BALTIEV, A.,  
dr.; HURMUZACHE, Th., dr.; LAZAR, P., dr.; JOSEFSON, I., dr.;  
DUMITRIU, St., dr.; FURCOI, I., extern; SAPIRA, A., extern

Current aspects of staphylococcal septicopyemia. Considerations on  
the cases hospitalized at the Communicable Disease Clinic of Iasi  
between 1950 and 1959. Med. intern., Bucur 13 no.1:33-43 Ja '61.

1. Lucrare efectuata in Clinica de boli contagioase, Iasi (director:  
prof. Maria Franche).

(STAPHYLOGOCCAL INFECTIONS statistics)  
SEPTICEMIA statistics)

KSENDZOVSKIY, L., inzh.; KAUFMAN, L., inzh., IVASHCHENKO, A., inzh.  
Furda, M., inzh.

Practices of the Yasinovka Flour Mill in producing macaroni flour.  
Muk.-elev.prom. 25 no.12:11-13 D '59. (MIRA 13:4)

1. Stalinskoye upravleniye khleboproduktov.  
(Yasinovka--Flour mills)

L 10829-66

ACC NR: AP600440

SOURCE CODE: CZ/0043/65/000/004/0259/0271

AUTHOR: Kohn, Rudolf--Kon, R. (Doctor; Engineer; Candidate of sciences);  
Tibensky, Vladimir--Tibenski, V. (Doctor; Engineer; Candidate of sciences);  
Furda, Ivan (Engineer)

ORG: Chemical Institute, Slovak Academy of Sciences, Bratislava (Chemicky ustav Slovenskej akademie vied)

TITLE: Determination of small amounts of HCl in the presence of polyuronic acids and acid polysaccharides containing carboxyl groups

SOURCE: Chemicke zvesti, no. 4, 1965, 259-271

TOPIC TAGS: microchemical analysis, titration, hydrochloric acid, polysaccharide, acrylic plastic, acrylic acid

ABSTRACT: Polymethacrylic acid was used as a model in the study. Potentiometric titration with 0.1 M NaOH showed that it is difficult to determine separate values for HCl and polymethacrylic acid. Total acidity could, however, be determined well, and Cl<sup>-</sup> by precipitation as the Ag salt. The titration can best be conducted in a medium of 1M KCl. The same method can be used for polyuronic acid. In the presence of polysaccharides better results are obtained without the KCl. M. Bystran participated in the experimental part of the work. The preparation of the "Tripektin" was done by the Swedish Joint-Stock Company Sugar Factories, Bi-products Factory, Arlov, Sweden. Orig. art. has: 5 figures and 4 tables. (JPRS)

SUB CODE: 07 / SUBM DATE: 25Sep64 / ORIG REF: 002 / OTH REF: 017

FURDA, M., krupchatnik

The intaking system of the blowing machine has been improved.  
Muk.-elev. prom. 28 no.5:30 My '62. (MIRA 15:5)

1. Donetskaya mel'nitsa No.3.  
(Flour mills)

FURDA, M., krupchatnik

Improving grouts blowers and machines for bran finishing. Muk.-elev.  
prom. 29 no.12:28 D '63. (MIRA 17:3)

1. Yasinovatskiy kombinat khleboproduktov Donetskoy oblasti.

FURDIK, M.

"Physical aids to the organic chemist" by H.S.C.Flett.  
Reviewed by M.Furdik. Chem zvesti 18 no.10:793 '64.

1. Editorial Board Member, "Chemické zvesti."

FURDIK, M.

Contributions to national economy in chemical protection  
of plants. Mikuláš Furdík. Chem. Zvesti 4, 56-4 70 (1950).  
—A lecture. Jan Muka

ŠURDÍK, M.; HRENCIAR, P.; LACOVÁ, M.

"Contribution to the preparation of coumarin-(4) acetic acids."

p. 471 (Acta, Vol. 1, no.10, 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 2,  
September 1958



FURDIX, M. and others.

"Synthesis of endo- and exo-cis isomers of N-substituted 1,4-endo-cyclohexene-(5)-2,3-dicarboximide isomers and their synergistic insecticidal effect."

p. 483 (Acta, Vol. 1, no. 10, 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (BEAT) IC, Vol. 7, no. 9,  
September 1958

CZECHOSLOVAKIA / Organic Chemistry. General and  
Theoretical Problems in Organic Chemistry. G

Abs Jour : Ref. Zhur. - Khimiya, No. 15, 1958, No. 50216

Author : Furdik, M.; Batora, V.; Drabek, J; Jaras, A.;  
Masek, J.; Truchlik, S.

Inst : -  
Title : Project for the Nomenclature of Phosphoro-  
Organic Compounds.

Orig Pub : Chem. Zvesti, 1957, 11, #10, 626-632

Abstract : No abstract.

Card 1/1

M. FURDIK

Phthalides and 1,3-indandiones. III. Preparation of halo and nitro derivatives of  $\alpha$ -naphthalphthalide and 2-( $\alpha$ -naphthyl)-1,3-indandione. The chemistry of  $\alpha$ -naphthalene and 1,3-indandione; M. Furdik and P. Hrdler (Komenský Univ., Bratislava, Czech.). *Chem. zvesti* 12, 464-76. (1968) (German summary); cf. C.A. 50, 14674c. — New derivs. of 2-( $\alpha$ -naphthyl)-1,3-indandione (I), halogenated or nitrated on the 4-position of the naphthalene ring are synthesized with halo or nitro derivs. of  $\alpha$ -naphthalphthalide. The following derivs. are described (substituent on the  $\alpha$ -naphthyl group in I and m.p. given): 4-Cl (II), 213-13°; 4-Br (III), 215-16°; 4-I (IV), 204-6°; 4-NO<sub>2</sub> (V), 217°. The reactivity of the  $\alpha$ -position of the naphthalene ring enhances to a great extent the reactivity of the 4-position in  $\alpha$ -naphthalphthalide. Also new derivs. of I simultaneously halogenated and nitrated also in the position 2 on the indandione group are synthesized, for 2-Cl deriv. (respective substituted compd. and m.p. given): II, 146°; III, 143°; IV, 144°; V, 199-202°; for 2-Br deriv. (the same data): II, 145-7°; III, 155-7°; IV, 150-3°; V, 208-11°; for 2-iodo deriv. II, 114°; III, 124°; IV, 128°; V, 140°; for 2-NO<sub>2</sub> deriv., II, 151-2°; III, 201-3°; IV, 156-60°; V, 165-7°. A considerable thermal instability was detd. for substituents in positions 2 on the indandione and 4 on the naphthalene rings.

5  
2m ay  
4E 3d  
4E 2c gj

jjd

Distr: 4E2c(j)

Phthalide and 1,3-indandione. IV. The synthesis of new amino derivatives of 2-phenyl- and 2-( $\alpha$ -naphthyl)-1,3-indandiones. M. Furdik, P. Hrdel, and E. Polakova (Komensky Univ., Bratislava, Czech.). *Chem. Abstr.* 12, 642-61(1958)(German summary); cf. C.A. 53, 3167. The synthesis of new amino- and acetamido derivs. of benzylidenephthalide and of  $\alpha$ -naphthalide, of 2-phenyl- and 2-( $\alpha$ -naphthyl)-1,3-indandiones is described. The NH<sub>2</sub> or H<sub>2</sub>NCO group is located on the benzene or naphthalene ring, in the 4'-position. By reduction with metallic Fe or FeSO<sub>4</sub>·7H<sub>2</sub>O of 4'-nitrobenzylidenephthalide or 4'-nitro- $\alpha$ -naphthalide, 4'-aminobenzylidenephthalide (I), m. 229-9° (Kofler), and 4'-amino- $\alpha$ -naphthalide (II), m. 222-3°, were prepd. By reduction with Fe of 2-(4'-nitrophenyl)-1,3-indandione and of 2-(4'-nitro- $\alpha$ -naphthyl)-1,3-indandione or by alcoholate conversion of I and II with Na metal 2-(4'-aminophenyl)-1,3-indandione, m. 198°, and 2-(4'-amino- $\alpha$ -naphthyl)-1,3-indandione, m. 230°, were prepd. By acetylation of I and II, 4'-acetamidobenzylidenephthalide (III), m. 285.5-6.5°, and 4'-acetamido- $\alpha$ -naphthalide (IV), m. 282-2.6°, were prepd. By alcoholate conversion of III and IV with Na metal 2-(4'-acetamidophenyl)-1,3-indandione, m. 232°, and 2-(4'-acetamido- $\alpha$ -naphthyl)-1,3-indandione, m. 226°, were prepd. In agreement with theory there is a considerably higher speed of conversion with than with 4'-nitrobenzylidenephthalide. Jan. 1958.

6  
2 May  
1

gof

Distr: 4E2c(j)/4E3b/4E3d

1  
Emulsion polymerization of 2-chloro-1,3-butadiene.  
Stanislav Landa and Mikuláš Purdík. Czech. 83,272, Mar.  
3, 1969. Softer polymers, more easily processed and hav-  
ing a higher tensile strength, are obtained by the poly-  
merization of 2-chloro-1,3-butadiene (I) in aq. emulsion in  
the presence of dithiocarbamates or their derivs. I (70 kg.),  
free of  $\text{AcH}$ , dichlorobutene, methyl vinyl ketone, or other  
impurities, is poured into 100 l.  $\text{H}_2\text{O}$  contg. 0.07 kg. di-  
ethylamine salt of ethyldithiocarbamate and 4 kg. of Na  
oleate. The temp. of polymerization is  $30-40^\circ$ , and the  
size of particles is less than  $0.1 \mu$ . V. Kratochvílová

3  
1-5A-1(vd)  
3

FURDIK, M.; SUTORIS, V.; DRABEK, J.

Synergists of pyrethrum. II. Acta r nat Univ Com 3 no.2/3:99-107  
'59. (EEAI 10:5)  
(Synergists) (Pyrethrum)

FURDIK, M.; DRABEK, J.

Synergists of pyrethrum. III. Acta r nat Univ Com 3 no.2/3:  
109-115 '59. (EEAI 10:5)  
(Synergists) (Pyrethrum)

FURDIK, M.; HRNCIAR, P.; VACOKOVA, V.

Phthalides and indandiones - 1,3). IV. Acta r nat Univ Com 3  
no.2/3:117-122 '59. (EKAI 10:5)  
, (Phthalide) (Indandione) (Naphthylindandione)



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24154  
Z/043/61/000/001/001/001  
D222/D302

AUTHORS : Furdík, M., Toma, Š., Suchý, J., and Flečko, P.

TITLE : Derivatives of ferrocene (II) and  
derivatives based on diacetylferrocene - A method  
for forming heteroannular rings

PERIODICAL : Chemické zvesti, no. 1, 1961, 45 - 62

TEXT : This paper is a continuation of the authors' studies  
on aldol condensation of monoacetylferrocene with aromatic aldehydes  
(Ref. 1: Chemické zvesti 14, 501 (1960)) and deals with the aldol  
condensation of diacetylferrocene with aromatic aldehydes and the  
influence exerted by the substituents and their position in the  
benzene nucleus of the aldehyde component. Special attention was  
paid to the question whether the second acetyl group condensates  
with another aldehyde molecule or causes intermolecular cycli-  
zation by the Michael addition on the double bond resulting from  
the aldol condensation of the first acetyl group. The diacetyl-

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ferrocene for the tests was prepared by Friedel-Crafts reaction of acetyl chloride with ferrocene under the catalytic influence of anhydrous aluminum chloride in CS<sub>2</sub>. The aldol condensation was performed in methyl alcohol in which the reaction products were dissolved in a ratio of 1 mol ferrocene to 2 mol aldehyde catalyzed by diluted NaOH added at 40 - 50°C. Aldehydes used in the condensation were benzaldehyde, piperonal, o-chlorobenzaldehyde, o-, m-, and p-nitrobenzaldehyde, and furfural. The obtained condensation products could be crystallized with the exception of those obtained by condensation with o-nitrobenzaldehyde which had an oily character. In most cases with the exception of nitrobenzaldehydes, the color of the condensation products was considerably less intense than that of the corresponding product obtained by monoacetylferrocene condensation and that of the initial diacetylferrocene itself. From the distinctive change of the color, it could be derived that the ethylenic double bond, originating by condensation on the first

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acetyl group, was saturated during the reaction, which could be effected either by an intramolecular Michael addition of the second intact acetyl group, or by intramolecular addition of the acetyl group of another diacetylferrocene molecule (Reaction scheme 2). By analysis of reaction products, especially of their infrared spectra, it could be determined that the Michael addition takes place during formation of a heteroannular 8-membered ring (including the Fe atom). It was thus ascertained that the condensation of diacetylferrocene with benzaldehyde, piperonal, o-chlorobenzaldehyde, furfural (and partially also with m-nitrobenzaldehyde) yields cyclic 1,1'-( $\alpha,\alpha'$ -diketo- $\beta$ -phenylpentamethylene) ferrocene or its derivatives respectively. Different products obtained by condensation with nitrobenzaldehydes showed an increase in color intensity. This led to the conclusion that the molecule conjugation increased considerably and that the Michael addition did not take place. This assumption was fully confirmed by the results of elementary

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analysis and infrared spectra of obtained condensation products. The nitro group with its -I effect and -M effect paralyzed the influence of the carbonyl group, so that the neighboring ethylenic double bond was not sufficiently polarized to allow the Michael addition. The only reaction taking place was, therefore, aldol condensation and the originating products of the 1-acetyl-1'-cinnamoylferrocene type maintained their ethylenic double bond and their intact second acetyl group. The small amount of heteroannular rings originating with condensation with m-nitrobenzaldehyde can be attributed to the weaker electron-attracting effect of the m-nitro group. In conclusion the authors state that the tests listed in this paper prove that the aldol condensation of diacetylferrocene with benzaldehyde, piperonal, o-chlorobenzaldehyde, furfural, and partially also m-nitrobenzaldehyde is accompanied by the Michael addition which leads to the formation of heteroannular rings. This

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Derivatives of ferrocene ...

intermolecular Michael addition can be considered a new preparative method for heteroannular cyclic ferrocene derivatives. The authors give credit to M. Pavlovičová of the Laboratórium fyzikálnej chémie Oddelenia chémie prírodných látok Chemického ústavu SAV v Bratislave (Laboratory of Physical Chemistry, Department for Chemistry of Natural Products, Chemical Institute of the Slovak AS in Bratislava); Engineer C. Peciarov, Engineer K. Linekov and collaborators of the analytický laboratórium, Oddelenia chémie prírodných látok Chemického ústavu SAV v Bratislave (Analytical Laboratory, Department for Chemistry of Natural Products, Chemical Institute of the Slovak AS in Bratislava); and J. Krskov of the analytický oddelenia Výzkuného ústavu agrochemickej technológie v Bratislave (Analytical Department of the Research Institute for Agrochemical Technology in Bratislava). There are 15 figures, 2 tables and 6 references: 1 Soviet bloc, 5 non-Soviet-bloc. The references to English-

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X

Derivatives of ferrocene ...

language publications reads as follows: P.L. Pauson: J. Am. Chem. Soc. 76, 2187 (1954); K.L. Rinehart, R.L. Curby: J. Am. Chem. Soc. 79, 3290 (1957).

ASSOCIATION: Katedra organickej chémie a biochémie Prírodovedeckej fakulty Univerzity Komenského v Bratislave (Department, Organic Chemistry and Biochemistry at the Department for Natural Sciences of the Komensky University in Bratislava); Oddelenie chémie prírodných látok Chemického ústavu Slovenskej akadémie vied v Bratislave (Department for Chemistry of Natural Products at the Chemical Institute of the Slovak AS in Bratislava)

SUBMITTED: March 3, 1980

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24648  
Z/043/61/000/008/001/001  
D213/D303

AUTHORS: Furdík, Mikuláš, Professor, Engineer; Toma, Štefan, Chemist and Suchý, Ján, Engineer

TITLE: Ferrocene derivatives (III). Fulvene on the basis of monoacetyl - and diacetyl ferrocene

PERIODICAL: Chemické zvesti, no. 8, 1961, 547-553

TEXT: This article is a continuation of previous work by the authors (Ref. 1: M. Furdík, P. Elečko, Š. Toma, J. Suchý, Chem. zvesti 14, 501, (1960)) and (Ref. 2: M. Furdík, Š. Toma, J. Suchý, P. Elečko, Chem. zvesti 15, 45, (1961)), and describes the production of fulvene on the basis of monoacetyl ferrocene and 1.1' diacetyl ferrocene as passive components of the reaction. Choosing the conditions for the reaction, both fulvenes, the  $\alpha$ -cyclopentadienylidenethylferrocene and the 1.1'-bis( $\alpha$ -cyclopentadienylidenethyl) - ferrocene were produced. To identify them infra-red absorption spectra were used. The appearance (coloring) of the two crystals was very similar, though the bis-derivative was the lighter; the

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Ferrocene derivatives (III)...

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comparison of the absorption spectra in the visible region gave results as reproduced in Graph 3. The synthesis of acetylferrocene; newly distilled cyclopentadiene, ethylalcohol, and NaOH solution is then described. The total extraction is 78% of the theoretically possible ferrocene.

Analysis:

For  $C_{17}H_{16}Fe$  (M = 276.148)

Calculated	C = 73.93%	H = 5.85%	Fe = 20.22%
Obtained	C = 73.98%	H = 5.72%	Fe = 20.03%

1.1' bis - ferrocene: Into a mixer are added diacetylferrocene, newly distilled cyclopentadiene, ethylalcohol, and NaOH solution. The extraction amounts to 93.5% of the theoretically possible.

Analysis:

For  $C_{24}H_{22}Fe$  (M = 366,266)

Calculated	C = 78.69%	H = 6.06%	Fe = 15.25%
Obtained	C = 78.42%	H = 5.94%	Fe = 15.01%

Spectral analysis was done in oil suspension, using a Zeiss UR 10 instrument for the infrared part. The work in the visible spectrum

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Ferrocene derivatives (III)...

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420 - 650 mμ was done with a Zeiss universal spectrophotometer, using ethylalcohol solution concentration  $5 \cdot 10^{-4}$  M/l. There are 4 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: P.L. Pauson, Am. Chem. Soc. 76, 2187 (1954)

ASSOCIATION: Katedra organickej chémie a biochémie PFUK (Chair of Organic Chemistry and Biochemistry, Philosophical Faculty, Komensky University) X

SUBMITTED: March 19, 1961

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FURDIK, M.; MASEK, J.

Synthesis of some derivatives of O-alkyl-bis-(diethylamido)-phosphites and O-alkyl-bis-(diethylamido)-thiophosphates. Acta r nat Univ Com 6 no.11:611-616 '61.

1. Katedra organickej chemie a biochemie, Universita Komenskeho, Bratislava, Smeralova 2.

FURDIK, M.; STOTA, Zd.; UNGVARSKY, C.

Synthesis of N-substituted amides of 2,3,4-trichlorobenzenesulfonic acid. Acta r nat Univ Com 4 no.11/12:677-685 '60 [publ. '61].

1. Katedra organickej chemie a biochemie, Universita Komenskeho, Bratislava, Smeralova 2.

FURDIK, Mikulas, prof., inz.; TOMA, Stefan, promovany chemik; SUCHY, Jan, inz.,  
C.Sc.

On ferrocene derivatives. Part 4: Derivates on the basis of the 1,1'-diacetylferrocenes; contribution to the examination of structure of heteroannular cycles. Chem zvesti 15 no.11/12:789-806 M-D '61.

1. Katedra organickej chemie a biochemie Prirodovedeckej fakulty University Komenskeho, Bratislava (for Furdik and Toma) 2. Oddelenie chemie prirodných látok Chemického ústavu Slovenskej akadémie vied, Bratislava (for Suchy). Authors' addresses: Bratislava, Smeralova 2 (for Furdik and Toma); Bratislava, Mlynske nivy 37, Chemický ústav Slovenskej akadémie vied (for Suchy).

FURDOK, M.

1. The first of the two main points of the report is that the Soviet Union is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States. The second point is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States.

2. The second of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

3. The third of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

4. The fourth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

5. The fifth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

6. The sixth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

7. The seventh of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

8. The eighth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

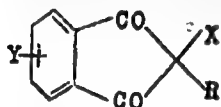
9. The ninth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

10. The tenth of the two main points of the report is that the Soviet Union is a major threat to the security of the United States because it is a major threat to the security of the United States. This is based on the fact that the Soviet Union has a large and powerful military, and it is capable of launching a surprise attack on the United States.

S/081/63/000/002/087/088  
B144/B186

AUTHORS: Furdík, Mikuláš, Maňásek, Zdeněk, Hrnčiar, Pavol  
TITLE: Method for preparing 2-chlorobutadiene-1,3 polymer  
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1963, 586, abstract 2T415 (Czechosl. patent 100478, Aug. 15, 1961)

TEXT: Chloroprene is polymerized or copolymerized with monocolefins in the presence of indan dione-1,3 derivatives of the general formula



where X is a halogen, R is H, a halogen, acyl, phenyl or

naphthyl (the last two either unsubstituted or substituted with halogen, NO<sub>2</sub>, CH=CH<sub>2</sub>, halogen-NO<sub>2</sub>, halogen-CN, CH<sub>3</sub>-halogen, CH<sub>3</sub>-CN, or NO<sub>2</sub>-CN, with ≤ 13 C atoms), Y is H, a halogen, NO<sub>2</sub>, CN, CH<sub>3</sub>. The polymers can be easily processed and are durable. The polymerisation velocity at 5°C is

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Method for preparing ...

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markedly higher than with the use of benzyl iodide. [Abstracter's note:  
Complete translation.]

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FURDIK, Mikulas, prof., inz. (Bratislava, Smeralova 2); TOMA, Stefan (Bratislava, Smeralova 2); SUCHY, Jan, inz., C.Sc. (Bratislava, Mlynske nivy 37)

Ferrocene derivatives (5). Aldol condensation of 1,1'-diacetylferrocene with aliphatic aldehydes. Chem zvesti 16 no.6:449-457 Jo '62.

1. Katedra organickej chemie a biochemie Prirodovedeckej fakulty Univerzity Komenského, Bratislava (for Furdik and Toma). 2. Ceskoslovenska akademie ved, Chemicky ustav Slovenskej akademie vied, Bratislava (for Suchy).



FURDIK, M.

The last volume of the "Collection of papers of Research Institute  
for Agricultural Chemical Technology in Bratislava." Chem zvesti  
16 no.9:709-710 8 '62.

FURDIK, Mikulas, prof., inz.; TOMA, Stefan, promovany chemik; DZURILLA, Milan, promovany chemik; SUCHY, Jan, inz., C.Sc.

Ferrocene derivatives. Part 7 : Diels-Alder reaction of the ferrocenyl fulvene and its derivatives with N-substituted maleic acid imides. Chem zvesti 16 no.10:719-740 0 '62.

1. Katedra organickej chemie a biochemie, Prirodovedecka fakulta Univerzity Komenského, Bratislava, Smeralova 2 (for Furdik, Toma and Dzurilla). 2. Oddelenie chemie prirodných látok, Chemický ústav, Slovenská akadémia vied, Bratislava, Mlynske nivy 37 (for Suchy).

FURDIK, M.; SIDOOVA, E.

Contribution to the preparation of cyclopenten-(1)-one-(3). Acta  
r nat Univ Com 6 no.11:617-621 '61.

1. Katedra organickej chemie a biochemie, Universita Komenskeho,  
Bratislava, Smeralova 2.

Z/043/63/000/001/001/004  
.D287/D307

AUTHORS: Furdik, M., Toma, Š. and Suchy, J.

TITLE: Ferrocene derivatives. VIII. Diels-Alder reaction of  
N-ferrocene maleinimide with dienes

PERIODICAL: Chemické Zvesti, no. 1, 1963, 21-29

TEXT: The present work is a continuation of an earlier investigation by the authors with the difference that they investigated the effect of the ferrocenyl group on the endo-exo isomerism of the dienophile-diene adducts. N-ferrocene-maleinimide was used as the dienophile, and was reacted with cyclopentadiene, dimethyl fulvene, ferrocenyl fulvene,  $\alpha$ -cyclopentadienylidene ferrocene, furan and  $\alpha$ -methylfuran. The Diels-Alder reactions were carried out in acetone under reflux, using equimolar quantities (10% excess for very volatile dienes). Only 1 isomer was separated in each case, i. e.

the endo-isomer of the bicyclic adduct. The  $1110\text{ cm}^{-1}$  band assigned to mono-derivatives of ferrocene, and the  $800 - 900\text{ cm}^{-1}$  bands of

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